# Running Injuries

## *Resolving Running Injuries with Active Release Techniques® (ART®)*

As any athlete knows, there is nothing more frustrating than to be kept from training or racing because of an injury. Unfortunately, this realization is particularly frequent with runners, as running injuries are amongst the most common of all sports injuries. To make matters worse, many running injuries become recurrent in nature and are often slow to respond to traditional types of care. This means that even after being sidelined for weeks or even months at a time, once their initial symptoms go away many runners will find themselves hampered by the same issues down the road, starting the whole process all over again.

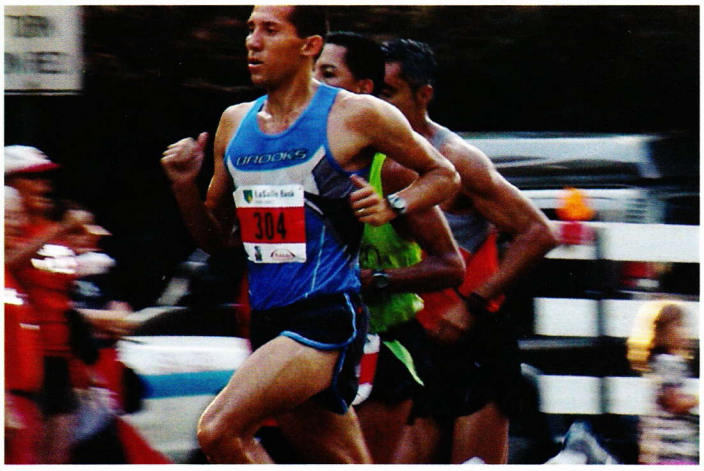
Now for the good news, a relatively new treatment technique known as **Active Release Techniques® (ART®)** is proving to be a very effective method to treat many common running injuries and is helping to get runners back to training and racing quickly and effectively. But before we talk about why ART® works so effectively, first you need to understand how running injuries occur in the first place.

## Why are Running Injuries so Common?

When talking about sports injuries it is important to realize that there are 2 major types of injures – acute and repetitive. Acute injuries occur following a single event, such as a fall or collision. Fortunately, these types of injuries are rare in running. By far the most common type of running injury is a repetitive injury. Like the name implies, repetitive injuries occur slowly over time as a result of performing the same motion over and over again. When examining the running stride you can easily see that it falls into the category of a repetitive activity. For example, the average runner will take 800 - 1000 strides per mile. Over the course of a 5 mile run this means that each heel will strike the ground 5000 times.

This high level of repetition is bad enough on its own, but making matters worse is the fact that each of these heel strikes is associated with a tremendous amount of impact force. Studies have shown that each heel strike produces a force that is equal to 3 - 4 times your bodyweight. For a 150 pound runner, this means that each heel strike will generate approximately 600 pounds of pressure. Over the course of a 5 mile run, this adds up to over 1300 tons of pressure!

This force doesn't just act at the foot. As the heel strikes the ground the impact force will then travel up the shin, through the knee, up through the thigh and hip, and into the pelvis and trunk. To ensure that the body is able to attenuate these forces it is absolutely critical there is proper mobility at the lower extremity joints, and adequate strength, endurance, and balance of muscles that control the leg, pelvis, and trunk. As long as the muscles and joints are working properly the chance of injury is greatly reduced; however, as you we will see, because of the repetitive nature and high impact forces associated with running, even minor problems will greatly increase the chances of pain and injury.



# How Do Running Injuries Occur?

As a result of the interconnectedness of the foot, knee, hip, pelvis, and trunk, proper running technique requires not only proper function of each individual muscle and joint, but also requires each body segment to work together in an integrated manner. This concept of integration is known as the kinetic chain. Even if a minor problem such as excessive tightness, weakness, joint restriction, poor muscle balance, or bad posture exists, it will not only cause a problem at that area, but it will also have an impact on the entire kinetic chain as it will cause the body to move in an unwanted, inefficient manner in an effort to compensate for the problematic area. In running, this alteration in body movement is referred to as a "stride fault" or "stride compensation".

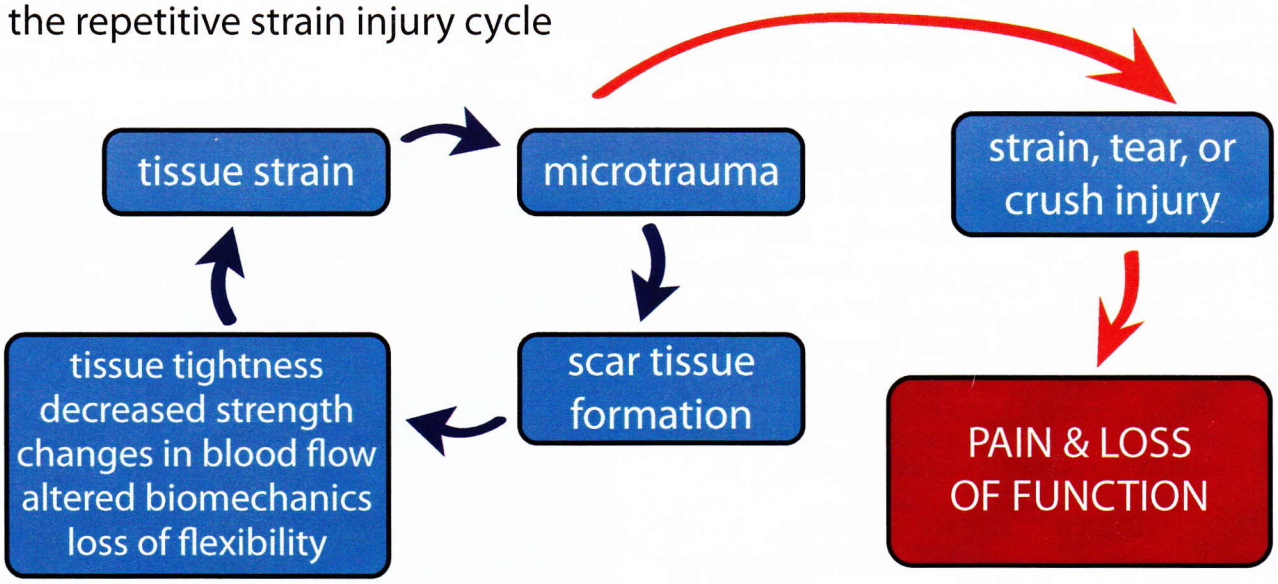
Stride compensations occur when altered or excessive motion in one area is caused by a movement problem in another area. Due to the high force – high repetition motions of running, even minor movement problems will be greatly magnified and will prevent the runner from properly controlling the impact forces and generating the propulsive forces associated with each stride. As this occurs, instead of being transferred effectively through the muscles and joints of the kinetic chain, the forces become concentrated at a particular area, usually the area of the stride compensation.

As a result of the cause - effect relationship between stride compensations and running injuries, it is critical that the entire kinetic chain is evaluated to ensure all areas are functioning properly, not just the area of pain. Failure to identify and correct stride compensations will not only prolong the injury process, but will also lead to the injury re-occurring over and over again.

# The Injury Process

From the preceding information it should be clear that running is a highly repetitive activity that is associated with a tremendous amount of impact force. Over time the repetitive forces can actually accumulate in the body and lead to strain of the muscles, ligaments, and joints - a process that is greatly magnified when movement restrictions and stride compensations are present. As time goes on and the runner continues to train and compete, the strain imposed on the body will develop into micro-trauma.

Initially this micro-trauma is not painful, but may be perceived as a mild ache or tightness in the muscles or joints. Although only small, this damage still needs to be repaired. The body responds to tissue injury in a very predictable way – by laying down new tissue to repair the damaged area. With micro-trauma, the body repairs the strained tissue by laying down small amounts of scar tissue in and around the injured area. The scar tissue itself is not a problem – in fact it is a normal and necessary part of healing. The problem occurs as the body is exposed to the same repetitive,



high impact forces of running day after day. This in turn causes the same muscles to become strained and subsequently repaired over and over again. Over time this scar tissue will build-up and accumulate into what we call adhesions. As these adhesions form they start to affect the normal health and function of the muscles. In fact, they will often lead to pain, tightness, stiffness, restricted joint motion, and diminished blood flow.

As these scar tissue adhesions accumulate they will place more and more strain on the muscles of the foot, knee, hip, pelvis, and trunk as the muscles must now stretch and contract against these adhesions with each stride. This places even further strain on the kinetic chain, which in turn leads to more micro-trauma. Essentially a repetitive injury cycle is set-up causing continued adhesion formation and progressive movement dysfunction. As the cycle progresses the ability of the muscles to contract properly is affected and the stability of the foot, knee, hip, and pelvis becomes compromised. At this point it is not uncommon for the muscles to give way and a more severe pain to occur. In fact many runners come into our office explaining how they have had an injury but have not done anything different that may have caused the pain. When further questioned these runners almost always describe some mild pain or tightness that has been building over time. As you can see from the explanation of this repetitive injury cycle, these types of injuries build-up over time and the more acute injury is often just the "straw-that-broke-the-camels-back."

## How Are Running Injuries Best Resolved?

### The Traditional Approach

In an attempt to treat running injuries, a variety of treatment methods are used, either on their own, or in combination with other methods. Some of the more common approaches include anti-inflammatory medications, rest, ice, ultrasound (US), muscle stimulation (E-Stim), steroid injections, stretching, exercise, and when all else fails, surgery. Unfortunately, most of these traditional techniques generally require a long period of time before they provide any significant relief, and in many cases provide only temporary relief from symptoms instead of fixing the underlying cause of the problem. This can be a huge problem as runners often want and need to get back to training and competition as soon as possible.

The main reason that these approaches are often ineffective is that they fail to address the underlying scar tissue adhesions that develop within the muscles and surrounding soft tissues. It is these adhesions that are binding the tissues together, restricting normal movements, and interfering with the normal flexibility and contraction of the muscles in the kinetic chain.

Passive approaches such as medications, rest, ice, and steroid injections all focus on symptomatic relief and do nothing to address the muscle restrictions and movement compensations. More active approaches such as stretching and exercise are often needed for full correction of the condition and to restore full strength and function of the muscles; however, they themselves do not treat the underlying adhesions. In fact, without first addressing the scar tissue adhesions, stretches and exercises are often less effective and much slower to produce relief or recovery from running injuries.